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(54) **Aqueous polymer emulsions**

(57) Emulsions are disclosed which contain (a) an aqueous carrier and (b) a polymer mixture of (1) 40-99.5 % by weight of a copolymer with a weight average molecular weight of at least 3000; and (2) 0.5-60 % by weight of a stabilizing copolymer dispersed in water, wherein the stabilizing copolymer comprises a structured polymer having a hydrophobic portion and a hydrophilic portion, wherein said structured polymer is selected from the group consisting of (i) polymers compris-

ing 5-95% by weight of a hydrophilic macromonomer having at least 10% of an acid functional monomer and 5-95% by weight of at least one hydrophobic monomer polymerized in the presence of the macromonomer; and (ii) polymers comprising 5-95% by weight of a hydrophobic macromonomer and 5-95% by weight of hydrophilic copolymer comprising at least 10% of an acid functional monomer polymerized in the presence of the macromonomer.

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# EUROPEAN SEARCH REPORT

Application Number  
EP 01 10 3394

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	WO 95 19999 A (ANTONELLI JOSEPH ALBERT ;BARSOTTI ROBERT J (US); DU PONT (US); BEC) 27 July 1995 (1995-07-27) * claims 1-10 ; page 7, line 9-10 ; page 13, line 9-16 ; page 12, line 4-13 ; page 14, line 4-8 ; page 5, line 5 - page 9, line 23 (particularly page 7, line 9-10)* ---	1,2,4-8, 10-13	C09D151/00 C08F290/06 C08F293/00 C09D153/00 C08F291/08
X	US 5 770 646 A (STRANIMAIER KERSTIN ET AL) 23 June 1998 (1998-06-23) * claims 1-8 ; column 7, line 37-48 ; column 11, line 18 - column 12, line 7 ; column 8, line 39-42 * * column 2, line 20 - column 4, line 62 * ---	1,2,4-8, 10-13	
X	WO 99 42505 A (DU PONT) 26 August 1999 (1999-08-26) * page 13 "Coating Example" ; Examples ; page 1, line 10-17 ; page 6, line 13-14, 26-29 ; claims 1-9 * * page 2, line 8 - page 7, line 30 * ---	1-3,5-9, 11-13	
D,X	WO 95 32229 A (BRUYLANTS PAUL ;HUYBRECHTS JOZEF (BE); STRANIMAIER KERSTIN (DE); D) 30 November 1995 (1995-11-30) * page 4, line 10-24 ; page 5, line 27-32 ; page 5, line 1-26 ; page 15, line 23-28 ; page 13, line 21-23 ; page 16, line 1-20 ; page 6, line 25 - page 7, line 29 ; page 8, line 9-page 10, line 35 * * page 13, line 13-15; claims 1-8 * ---	1,2,4-8, 10-13	C08F C09D C09B C08L
A	WO 96 15158 A (DU PONT ;COMMW SCIENT IND RES ORG (AU); MOAD GRAEME (AU); MOAD CAT) 23 May 1996 (1996-05-23) * claims 1-10 * --- -/--	1-3,5-9, 11-13	
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>10 October 2001</b>	Examiner <b>Hammond, A</b>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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# EUROPEAN SEARCH REPORT

Application Number  
EP 01 10 3394

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 5 460 892 A (BEDERKE KLAUS ET AL) 24 October 1995 (1995-10-24) * claims 1-14 ; column 2, line 3-56 * * column 5, line 5 - column 7, line 25 * ---	1-3, 5-9, 11-13	
A	US 5 773 505 A (BEYER CLAUDIA ET AL) 30 June 1998 (1998-06-30) * claims 1-9 * ---	1-13	
A	US 5 763 548 A (MATYJASZEWSKI KRZYSZTOF ET AL) 9 June 1998 (1998-06-09) * the whole document * -----	1-13	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>10 October 2001</b>	Examiner <b>Hammond, A</b>
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p>			

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LACK OF UNITY OF INVENTION  
SHEET B

Application Number  
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-3, 5-6

An emulsion comprising (a) an aqueous carrier ; (b) a polymer mixture comprising (1) 40-99.5 %wt. of a copolymer with Mw of at least 3000, (2) 0.5-60 %wt. of a stabilising copolymer dispersed in water, said stabilising copolymer comprising a hydrophobic portion and a hydrophilic portion as selected from the selections (i), (ii). Claim 3 defines component (2) as comprising an AB block copolymer.

2. Claim : 4

An emulsion comprising components (a) and (b) wherein the (b)(2) stabilising polymer is a graft copolymer.

3. Claims: 7-9, 11-13

A waterborne coating composition comprising an aqueous emulsion, said emulsion comprising components (a), (b)(1) and (b)(2). Claim 9 defines the stabilising component b(2) as a block copolymer.

4. Claim : 10

A waterborne coating composition comprising an aqueous emulsion, said emulsion comprising components (a) and (b). Claim 10 defines the stabilising polymer (b)(2) as a graft copolymer.

The present application claims contain several inventions in consideration that the "corresponding technical features" of an emulsion comprising (a) an aqueous carrier, (b) a polymer mixture comprising 40-99.5 %wt. of a copolymer with a Mw of at least 3000, (b) 0.5-60 %wt. of a stabilising copolymer dispersed in water, said stabilising copolymer comprising a hydrophobic portion and a hydrophilic portion as defined, are not novel in view of the disclosures of W09942505, US5770646, W09519999 etc. (see search report).

Since the "corresponding technical features" are not novel, there are no "special" technical features within the meaning of Rule 30 EPC, and consequently the present application does not meet the requirements of Article 82 EPC for lack of clarity.

As a result of this lack of unity, the first invention only was initially searched which resulted in claims 1-3, 5-6 having been searched. After this initial search report, the applicant subsequently requested that the three further "inventions" be searched. This has now been conducted (see the accompanying final search report).

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 10 3394

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